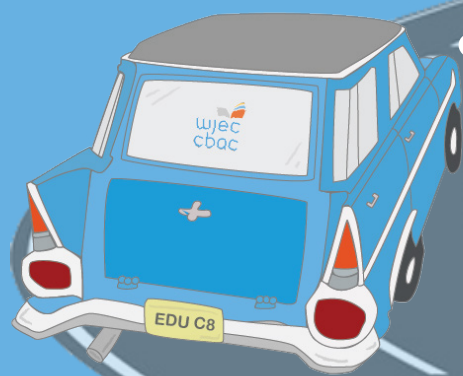


# YOUR JOURNEY

TO BECOMING EXAM READY



## WELCOME TO AS/A LEVEL COMPUTER SCIENCE



By studying the WJEC AS and A Level in Computer Science, it has been designed to give an in-depth understanding of the fundamental concepts of computer science and a broad scope of study opportunities. This specification has been designed to free centres to concentrate on innovative delivery of the course by having a streamlined, uncomplicated, future-proof structure, with realistic technological requirements.

## PLANNING AHEAD...

**WJEC AS and A Level in Computer Science encourages learners to develop:**

- an understanding of, and the ability to apply, the fundamental principles and concepts of computer science, including abstraction, decomposition, logic, algorithms and data representation
- the ability to analyse problems in computational terms through practical experience of solving such problems, including writing programs to do so
- the capacity for thinking creatively, innovatively, analytically, logically and critically
- the capacity to see relationships between different aspects of computer science
- mathematical skills
- the ability to articulate the individual (moral), social (ethical), legal and cultural opportunities and risks of digital technology.

Computers are widely used in all aspects of business, industry, government, education, leisure and the home. In this increasingly technological age, a study of computer science, and particularly how computers are used in the solution of a variety of problems, is not only valuable to the learners but also essential to the future well-being of the country.

Computer science integrates well with subjects across the curriculum. It demands both logical discipline and imaginative creativity in the selection and design of algorithms and the writing, testing and debugging of programs; it relies on an understanding of the rules of language at a fundamental level; it encourages an awareness of the management and organisation of computer systems; it extends the

learners' horizons beyond the school or college environment in the appreciation of the effects of computer science on society and individuals. For these reasons, computer science is as relevant to a learner studying arts subjects as it is to one studying science subjects.

### AS UNITS

#### Unit 1: Fundamentals of Computer Science

This unit investigates computer architecture, communication, data representation, data structures, software applications, programs, algorithms, logic, programming methodologies and the impact of computer science on society.

#### Unit 2: Practical Programming to Solve Problems

This unit consists of a series of set tasks completed on-screen by candidates. These tasks will assess the practical application of knowledge and understanding and will require the use of Visual Basic.NET, Python or Java as a programming language.

### A2 UNITS

#### Unit 3: Programming and System Development

This unit investigates programs, data structures, algorithms, logic, programming methodologies and the impact of computer science on society.

#### Unit 4: Computer Architecture, Data, Communication and Applications

This unit investigates computer architecture, communication, data representation, organisation and structure of data, programs, algorithms and software applications.

#### Unit 5: Programmed Solution to a Problem

Candidates discuss, investigate, design, prototype, refine and implement, test and evaluate a computerised solution to a problem chosen by the candidate which must be solved using original code (programming).

This is a substantial piece of work, undertaken over an extended period of time.

# GIVE IT YOUR ALL!

## TOP TIPS

**Download the free online resources** on the WJEC website

**Familiarise yourself** with Algorithms, programming constructs, programming languages

**Make use of the sample assessment materials (SAMs)** as well as the past papers and mark schemes to familiarise yourselves with the structures of the papers

**Use the Online Exam Review link** on the WJEC website to view examples of candidate responses to past questions, the mark awarded and the corresponding examiner comments

## WELLBEING GUIDANCE

### **Take baby steps.**

Remember this is a journey and you will pick skills and knowledge up along the way.

### **Take regular breaks from studying.**

Exercise, meet friends, spend time with family.

### **Look after yourself.**

Make sure you are getting a balanced diet and get enough sleep.

### **Try to stay positive.**

Even if you don't feel like it, a positive attitude will help you.

### **Remember that everyone's different.**

Try not to compare yourself to others.

## HOW ARE YOU ASSESSED?

### **AS (2 units)**

#### **AS Unit 1 - Fundamentals of Computer Science**

Written examination: 2 hours - 25% of qualification - 100 marks

#### **AS Unit 2 - Practical Programming to Solve Problems**

On-screen examination: 2 hours - 15% of qualification - 60 marks

### **A Level (the above plus a further 3 units)**

#### **A2 Unit 3 - Programming and System Development**

Written examination: 2 hours - 20% of qualification - 100 marks

#### **A2 Unit 4**

#### **Computer Architecture, Data, Communication and Applications**

Written examination: 2 hours - 20% of qualification - 100 marks

#### **A2 Unit 5 - Programmed Solution to a Problem**

No-exams assessment - 20% of qualification - 100 marks

